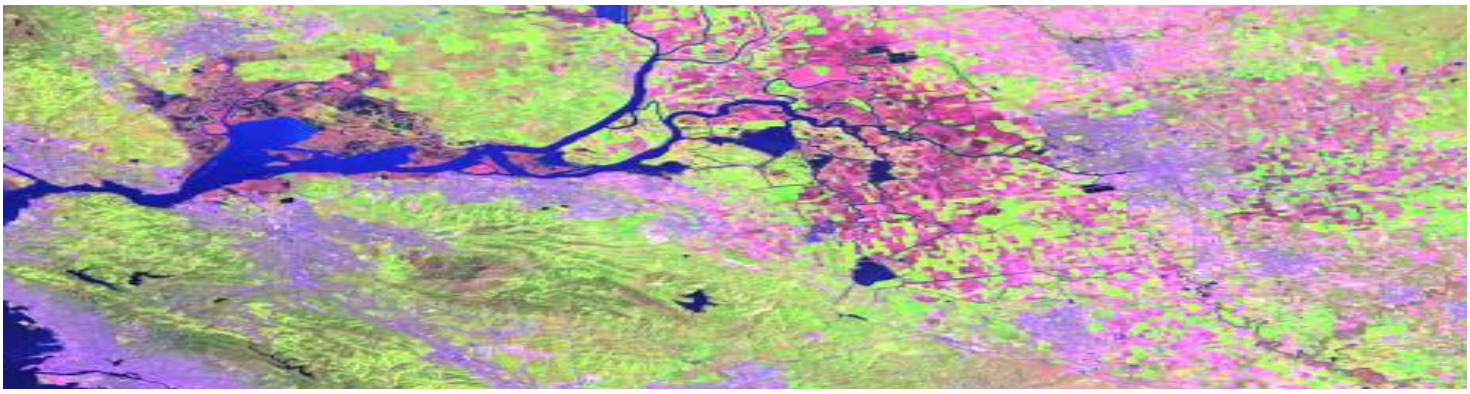

Source: http://glovis.usgs.gov/

Long Term Management Strategy for Dredged Material in the Delta (Delta LTMS)

Process Framework

Pinole Shoal Management Study

September 2006

Delta LTMS Process Framework

1 Introduction and Background

The Delta estuary is the largest estuary on the West Coast. Covering more than 738,000 acres in five counties, it is a maze of tributaries, sloughs, and islands and a haven for plants and wildlife, supporting more than 750 plant and animal species, including more than 110 species listed as "species of concern." The Delta is critical to California's economy, supplying drinking water for two-thirds of Californians and irrigation water for more than 7 million acres of the most highly productive agricultural land in the world.

The Delta is also the hub of California's two largest water distribution systems – the Central Valley Project (CVP) operated by the U.S. Bureau of Reclamation (Reclamation) and the State Water Project (SWP) operated by the California Department of Water Resources (DWR). Maintaining high quality water in the Delta is critical for drinking water supplies, agricultural irrigation, and ecosystem function. More than 1,100 miles of levees protect the water conveyance functions, ecosystem, and land uses on Delta islands. The Sacramento and San Joaquin River channels also provide important shipping access to the Ports of Sacramento and Stockton.

In recent years, conflicts about levee rehabilitation, dredging, and placement of dredged sediments have been increasing. There is an ongoing need to dredge Delta channels for navigation, water conveyance, flood control, and levee maintenance. At the same time, there are increasing regulatory concerns about the potential impacts to water quality and the ecosystem from levee work, dredging activities, and dredge material placement and reuse.

In the last several years, agencies, the public, political leaders, and the media have become increasingly concerned about the urgent need for levee rehabilitation in the Delta. One possible contributor to Delta levee rehabilitation is sediment management and reuse from dredging activities. At the same time, the Delta environment is showing signs of major stress and dysfunction, as evidenced by the rapid decline of pelagic species in recent years. Concerns about the complex and sensitive environment in the Delta have resulted in stringent regulatory requirements for dredging and sediment reuse and placement in the Delta. These two apparently conflicting objectives, protection of the Delta environment and increased dredging and sediment reuse and placement, highlight the need for better coordination and management of Delta dredging and sediment management and reuse requirements.

In late 2004, local sponsors of Delta dredging projects and the U.S. Army Corps of Engineers (USACE) met to explore the feasibility of developing a long-term management strategy (LTMS) for dredging and dredged material placement or reuse in the Delta under the authority of the Pinole Shoal Management Study. The LTMS process was used successfully to develop a collaborative, coordinated approach to dredging and sediment management in San Francisco Bay.

In 2005, the USACE worked with stakeholders including other federal and state agencies to define a cooperative, collaborative approach to address the problems, challenges, and opportunities related to levee work, dredging, and placement in the Delta. This Process Framework is the result of those discussions.

This document describes the initial framework for the Delta LTMS, including the following:

- Study purpose, goals, and objectives
- Structure, participants, and roles

- Authorities and decision making
- Related programs
- Study activities and phases

This framework is intended to describe the overall purpose and structure of the process so participating agencies can confirm the purpose, participation, and resources for the Delta LTMS. As with any cooperative planning process, the framework will be refined as participation increases and implementation proceeds.

To address these concerns, the U.S. Army Corps of Engineers began working with four other federal and state agencies: U.S. Environmental Protection Agency (USEPA), the California Department of Water Resources (DWR), the Resources Agency, CALFED Bay-Delta Program (CALFED), and the California Regional Water Quality Control Board, Central Valley Region (CVWQCB). These five agencies drafted this initial Process Framework to describe a cooperative approach for developing an LTMS for Delta dredging.

2 Study Purpose

2.1 Problems, Challenges, and Opportunities

The Delta plays a critical role in a number of fronts bringing unique challenges and opportunities in establishment of a Long Term Management Strategy. These challenges and opportunities are in areas of management of sediment, ecosystem integrity, water conveyance, water quality and supply, navigation, recreation, and flood control. The following is a brief description of these challenges and opportunities as they relate to the Delta:

Dredging – Dredging in the Delta is a critical activity for maintaining the important functions of the Delta – levee stability, flood control, navigation, ecosystem quality, water supply, and recreation. Dredging activities vary in size from small marina dredging projects to major channel deepening. There is no comprehensive planning for dredging in the Delta to determine the dredging and placement needs, potential beneficial uses of dredged material, or placement sites. In the last ten years, increasing concerns about the impacts of dredging on fisheries, habitat, and surface and ground water quality have resulted in greater restrictions on dredging operations and the placement or reuse of dredged material. Today, the complexity of the regulatory permit process for the Delta is viewed as a major contributor to escalating project costs and lengthy study and review processes by those conducting dredging projects small and large. Delta dredging could support or harm the critical Delta features described below, including the ecosystem, levees, navigation, recreation, water quality, and water supply.

Ecosystem – The Delta ecosystem is the largest estuarine ecosystem on the west coast. It supports more than 750 plant and animal species. There are more than 110 species of fish, plants, animals, and birds in the Delta that are listed by state and federal agencies as “species of concern.” For the past ten years, state and federal resource agencies have focused hundreds of millions of dollars on ecosystem restoration projects to protect and enhance the ecosystem functions. In spite of those efforts, there are indications that much more needs to be done. For example, in the last several years, populations of pelagic fish have dropped precipitously. Continued protection and enhancement of the Delta ecosystem and threatened and endangered species is necessary.

Levees – Delta levees are the most important infrastructure in the Delta. More than 1,100 miles of levees protect thousands of acres of homes and farmland, protect and provide important habitat, and convey fresh water supplies through the Delta for agriculture, municipal, and industrial water supplies. Approximately 410,000 people live in communities of the Delta protected by levees. The Delta levee system is at risk of chronic and catastrophic failure as a result of deferred maintenance, earthquake, or flood. The consequences of major levee failure in the Delta are potentially devastating for water quality, water supply, the ecosystem, and local property and economic activity.

Navigation – The Delta is also a transportation corridor for access to deep water ports in Stockton and Sacramento. Two federally authorized shipping channels exist in the Delta, the Sacramento Deep Water Channel and the Stockton Deep Water Channel. These channels provide access to foreign markets for Central Valley exports such as sulfur, rice and wheat, and imported goods such as cement, fertilizer, and steel. In 2004, more than 325 ships and barges transported nearly 3 million tons of goods through the ports. Without regular maintenance, the deep water channels fill with silt and debris, reducing access by ship traffic.

Recreation – Delta channels are an important recreation resource for the region. In 1996, the Delta Protection Commission estimated that the Delta hosted more than 26 million boating and fishing days. The Delta boasts more than 100 marinas and waterside resorts, parks, and campgrounds, and more than 50 boat launching facilities. Protecting and enhancing the Delta fish populations and dredging to maintain marina access are high priority goals for recreation in the Delta.

Water Conveyance and Supply – The Delta provides fresh water for more than 23 million Californians and 7 million acres of the most highly productive farmland in the world. Delta channels and sloughs convey water from the major river systems to intake pumps throughout the Delta. The amount and quality of water diverted from the Delta is influenced by hydrology, water operations, and other activities in the Delta. Continued protection of the water supply system is critical for public health and the economy of California.

Water Quality – The waters of the Delta provide for several diverse, and sometimes conflicting, beneficial uses, including drinking water, habitat, irrigation, and recreation. The natural actions of an estuary where fresh and salt water meet pose substantial challenges in serving these beneficial uses. These challenges are made even greater by the human activities that channel, move, divert, and return water to the Delta. Protecting and enhancing water quality for all beneficial uses is critical for public health, recreation, and the sustained health of the Delta ecosystem.

2.2 Study Purpose Statement

As a result of these challenges, the five initial agencies, referred to as the Interagency Working Group (IWG) (USACE, USEPA, DWR, CALFED, and CVWQCB) have agreed to examine Delta dredging, reuse, and placement needs and explore ways to improve the regulatory approval process for dredging in the Delta. The agencies seek to coordinate dredging planning and dredged material management in ways that protect and enhance the Delta environment and water quality. The agencies recognize the importance of dredging projects and promoting the beneficial use of dredged material to stabilize levees, maintain and improve navigation channels,

support ecosystem restoration, and maintain water supply and water quality. With these needs in mind, the agencies have drafted the following three-part project purpose statement:

1. The Delta LTMS will examine and coordinate dredging needs and sediment management in the Delta to maintain and improve channel function (navigation, water conveyance, flood control, and recreation), levee rehabilitation, and ecosystem restoration, and promote the beneficial use of dredged material.
2. Agencies and stakeholders will work cooperatively to develop a management plan that is based on sound science and protective of the ecosystem, water supply, and water quality functions of the Delta.
3. As part of this effort, the Delta LTMS will consider regulatory process improvements for dredging and dredged material management so that project evaluation is coordinated, efficient, timely, and protective of Delta resources.

3 Goals & Objectives

3.1 Study Goals

The following goals describe the overarching goals of the Delta LTMS. These three goals represent the benefits to be achieved from a coordinated sediment material management program and an improved dredging approval process:

- Manage sediment, including the beneficial use of dredged material, to maintain and stabilize Delta levees that protect land-based activities, water conveyance, and terrestrial ecosystems
- Manage dredging activities and beneficial use to protect and enhance water quality for Delta water supply and ecosystem function
- Manage dredging activities to support and maintain Delta channel functions for navigation, flood control, water conveyance, and recreation

3.2 Study Objectives

To achieve these goals, the Delta LTMS intends to improve coordination, planning, and approvals of Delta dredging activities and sediment management to achieve these specific objectives:

- Improve coordination and cooperation among agencies with dredging management responsibilities or regulatory authority over dredging activities
- Protect surface and groundwater quality
- Protect fish species and habitat
- Facilitate beneficial use of dredged material for levee stabilization or other uses
- Support ecosystem restoration activities in the Delta
- Support cost-effective dredging activities

4 Structure, Participants, and Roles

The Delta LTMS is organized to include an executive committee, management committee, interagency working group, policy review group, science and technical work groups, and a science review panel as described in this section. In addition, public meetings are held periodically to provide additional opportunities for input and feedback from interested parties.

4.1 Executive Committee

At the top level, an Executive Committee directs the overall program, sets policy direction, and provides oversight of the study. The directors of each of the following agencies serve on the Executive Committee. The executive managers have the decision-making authority to represent the agency on the policy and regulatory issues to be addressed. The agency Executive Committee generally meets annually or as necessary to set policy direction for the study and keep abreast of the progress of the Delta LTMS.

Federal Agencies

- U.S. Army Corps of Engineers, Commander, South Pacific Division
- U.S. Environmental Protection Agency, Regional Administrator, Region 9

State Agencies

- State Water Resources Control Board, Chairperson
- California Regional Water Quality Control Board, Central Valley Region, Chairperson
- California Department of Water Resources, Director
- Resources Agency, CALFED Bay-Delta Program, Director
- Delta Protection Commission, Chairperson

4.2 Management Committee

The Management Committee consists of the deputy-level managers for the state and federal agencies. The Management Committee oversees the work of the Interagency Working Group (IWG) and the Policy Review Group, reviews policy recommendations, study plans, budget proposals, and provides recommendations to the Executive Committee. The Management Committee generally meets quarterly. Members of the Management Committee are:

- U.S. Army Corps of Engineers, District Commander, San Francisco District
- U.S. Army Corps of Engineers, District Commander, Sacramento District
- California Department of Water Resources, Deputy Director, Public Safety
- U.S. Environmental Protection Agency, Associate Director, Water Division, Region 9
- Resources Agency, CALFED Bay-Delta Program, Chief Deputy Director
- State Water Resources Control Board, Executive Officer
- California Regional Water Quality Control Board, Central Valley Region, Executive Officer
- NOAA Fisheries, Southwest Region
- U.S Fish and Wildlife Service, Pacific Region
- California Department of Fish and Game

4.3 Interagency Working Group

The Interagency Working Group (IWG) includes program-level staff at five agencies. The IWG serves as the primary program managers of the Delta LTMS process and steering committee for the Policy Review Group. The IWG coordinates with the Management Committee, the Policy Review Group and others with an interest in Delta activities and the LTMS process. The IWG's role is to identify study issues and questions to be addressed such as: identify technical work groups and expert resources, confirm purpose, charter, and assignments for the science review panel and technical work groups, discuss and review study work plans and scopes, discuss and review study budgets and resource needs, prepare and approve study reports, and develop management and policy options for the Management and Executive Committees. The members of the IWG consist of the following:

- U.S. Environmental Protection Agency
- U.S. Army Corps of Engineers
- California Regional Water Quality Control Board, Central Valley Region
- Resources Agency, CALFED Bay-Delta Program
- California Department of Water Resources

The Management Committee may identify other participants in the IWG.

4.4 Policy Review Group

Delta LTMS activities are informed by the Policy Review Group consisting of representatives of other agencies, stakeholders, and interest groups in the Delta working in or affected by dredging and beneficial use activities for navigation, levee stability, flood control, water quality, or ecosystem restoration. The Interagency Working Group coordinates meetings monthly or as needed with the Policy Review Group to identify, review, and discuss: 1) the Delta sediment issues of concern to be addressed by the Delta LTMS and in what order, 2) lines of inquiry that the science and technical work groups (described below) will be tasked to pursue, 3) coordinated regulatory approach for Delta dredging to be approved by the Executive Committee.

Members of the Policy Review Group may also provide public comment at the Management and Executive Committee meetings. The Policy Review Group includes, but is not limited to the following organizations:

State and Federal Agencies

- NOAA Fisheries, Southwest Region
- U.S. Fish & Wildlife Service, Pacific Region
- California Department of Fish & Game
- Delta Protection Commission
- State Lands Commission
- Reclamation Board

Local/Regional Agencies

- Reclamation Districts
- Contra Costa, Sacramento, Solano, Yolo, and San Joaquin Counties
- North, Central, and South Delta Water Agencies

Stakeholders and Interest Groups

- The Ports of Sacramento and Stockton
- Bay Planning Coalition
- DeltaKeeper
- The Nature Conservancy
- The Bay Institute
- Environmental Water Caucus
- California Sportfishing Protection Alliance
- California Farm Bureau Federation
- State Water Contractors
- California Delta Chambers

4.5 Science and Technical Work Groups

The Management Committee will establish specific science and technical work groups to address Delta LTMS issues. The technical work groups report directly to the Management Committee. Technical work groups are open to interested participants from any agency or interest group. With the direction and approval of the Management Committee, technical work groups identify study needs, develop study scopes and work plans, identify resources, and review results and conclusions. The Management Committee identifies the leader for each technical group. Some example science and technical work groups include the following:

- **Testing Protocols** – examining the appropriate procedures for testing dredged material
- **Soil and Sediment Studies** – characterizing the quality of sediments and soils in the Delta
- **Permitting Process** – identifying the regulatory approval process and opportunities for improved coordination
- **Placement and Reuse** – identifying criteria, methods, and locations for dredged material placement and reuse

These groups will be formed as determined by the Management Committee.

4.6 Science Review Panel

The Management Committee establishes a Science Review Panel made up of independent scientists. The purpose of the Science Review Panel is to provide an independent science review process for Delta LTMS studies. The Management Committee approves the leader and participants for the Science Review Panel.

The Science Review Panel report directly to the Interagency Working Group. The Science Review Panel addresses issues identified by the Interagency Working Group and Policy Review Group, evaluates existing information, identifies gaps, and reviews results and conclusions.

4.7 Other Stakeholders/Interested Public

Other interested parties have the opportunity to learn about the Delta LTMS process and activities and to comment on them at public meetings to be held on an as needed basis, at project milestones.

5 Authorities and Decision Making

A number of state and federal agencies regulate dredging and dredged material management in the Delta. Different laws and regulations govern their roles and responsibilities, but often their purposes and goals overlap. The following summarizes the agency responsibilities for dredging, water quality, natural resources, levees, and land use. One of the early Study activities will be to document the planning, regulatory, and implementation responsibilities for Delta dredging.

5.1 Dredging

The primary state and federal agencies involved in planning and permitting dredging projects are the U.S. Army Corps of Engineers (USACE), U.S. Environmental Protection Agency (USEPA), California Regional Water Quality Control Board, Central Valley Region (CVWQCB) and the State Lands Commission (SLC).

5.2 Water Quality

The primary agencies with responsibility for overseeing compliance with water quality laws and regulations are the U.S. Environmental Protection Agency, the State Water Resources Control Board, and the California Regional Water Quality Control Board, Central Valley Region.

5.3 Natural Resources

Dredging and placement actions in the Delta will involve the review and approval by state and federal resource agencies, including the U.S. Fish & Wildlife Service (FWS), the National Marine Fisheries Service (NMFS), and the state Department of Fish & Game (DFG).

5.4 Levees

If the placement of dredge material involves levees in the Delta, the USACE, the Department of Water Resources, the California Reclamation Board, and the individual Reclamation Districts have responsibilities and authorities for planning, reviewing and approving levee maintenance and dredged material placement.

5.5 Land Use

The Delta Protection Commission has regional planning and coordination responsibilities in the Delta to protect agriculture, wildlife habitat, and recreation. Five counties (Contra Costa, San Joaquin, Solano, Sacramento, and Yolo) and several cities have land use planning authority in the Delta.

6 Study Activities and Phases

The Delta LTMS will generally combine two parallel approaches – a management approach and a planning approach. These activities are designed to comply with USACE guidance for Long-Term Management Strategies and Dredged Material Management Plans, while at the same time

allowing flexibility to consider and incorporate planning and evaluation activities from other federal and non-federal partners. In the near-term, these activities will focus on identifying and addressing the immediate challenges associated with dredging and protecting the Delta's resources. In the long-term, these activities will improve the scientific understanding of the effects of dredging and measures to protect Delta resources and develop a Sediment Management Plan to coordinate dredging planning, dredge material placement and reuse, and the permitting process.

6.1 Management Approach

The management approach for the Delta LTMS is designed as an iterative approach to identify and address priority issues and needs related to Delta dredging and levee rehabilitation. The iterative approach proceeds through five activities:

1. **Assessment** – During the Assessment stage, the agencies and stakeholders will identify and prioritize dredging and dredged material management needs, opportunities and constraints, the regulatory approval process, and study and analysis needs.

2. **Research and Analysis** – During the Research and Analysis stage, the agencies and stakeholders will define and implement focused research and policy analysis activities to collect and evaluate information that will assist the Management Committee and the Agency Executive Committee address the priority issues and needs.

3. **Planning** – During the Planning stage, the agencies and stakeholders will develop and evaluate options to address the priority issues and needs related to sediment management, beneficial reuse, and regulatory process improvements.

4. **Implementation** – The Implementation stage will include the activities necessary to implement the actions identified during the planning activities.

5. **Evaluation and Refinement** – During the final stage, the agencies and stakeholders will review and evaluate the performance of the implemented actions. The evaluation results will be reported to the Agency Executive Committee and stakeholders and used to prioritize activities for the next iteration of the management approach.

6.2 Planning Approach

In parallel with the iterative management approach to priority issues associated with Delta dredging, the Delta LTMS will proceed through five planning phases leading to a long-term Sediment Management Plan. These planning phases are consistent with federal planning guidelines.

Phase 1 – Evaluate Management Options – Establish goals, objectives, geographic scope, and operational boundaries. Forecast dredging requirements, material characteristics placement site capacities, and reuse and placement needs.

Phase 2 – Formulate LTMS Alternatives – Develop and retain all viable long-term management options that meet study goals and objectives.

Phase 3 – Alternatives Analysis – Complete a comparative assessment that weighs and balances engineering, economic, and environmental factors and benefits.

Phase 4 – LTMS Implementation – Develop and implement plan, including environmental documentation, permits, and mitigation requirements.

Phase 5 – Review and Update LTMS – Conduct periodic reevaluation of regulatory, economic, and environmental conditions and identify updates to the Delta LTMS.

6.3 Initial Issues and Topics

The following is an initial list of issues and topics planned for the Delta LTMS:

- **Regulatory Process** –Document the regulatory approval process for dredging activities and beneficial use of dredged material and identify opportunities for improved coordination.
- **Dredging Activities and Quantities** – Identify and quantify planned dredging activities for navigation, flood control, water conveyance, recreation, and other Delta functions.
- **Reuse and Placement Capacity** – Identify and quantify sediment reuse needs, sediment sources, and on-going long-term placement capacity.
- **Testing Protocols** – Identify and conduct research on evaluation of dredged material testing protocols for beneficial use of dredged sediment in the Delta.
- **Sediment Quality** – Develop and implement research on sediment quality in likely areas for dredging.
- **Emergency Procedures** – Identify existing responsibilities and procedures for response to emergency conditions in the Delta (e.g., levee failure or flooding).

7 Summary

The structure and process for the Delta Long-Term Management Strategy described in this document are designed to establish a collaborative framework to examine Delta dredging, beneficial use of dredged sediment for levee reconstruction and ecosystem restoration, and other placement needs and explore ways to improve the regulatory approval process for dredging in the Delta in ways that protect and enhance the Delta environment and water quality.

In this document, the following was detailed: 1) purpose, 2) goals and objectives, 3) structure, participants and roles of committees and working groups, 4) authorities and decision making processes, and 5) study activities and phases for the Delta LTMS process. When taken together, these framework components will enable participants to shape and implement a Delta LTMS work plan and, ultimately, a Delta sediment management plan that recognizes the importance of dredging projects to stabilize levees, maintain and improve navigation channels, support ecosystem restoration, and maintain water supply and water quality. The immediate next steps include development of a project management plan and work plan, as well as preparing a detailed scope of work for development of the Sediment Management Plan.

Appendix A

Related Programs

The Bay-Delta is an interconnected system that affects and is affected by numerous projects and programs related to levees, navigation, water supply, ecosystem restoration, land development, and recreation. The following is a list of the major programs in each of these areas that will influence or relate to the Delta LTMS.

Multi-Purpose Programs

Delta Improvement Program – As part of the CALFED Bay-Delta Program, DWR, the federal Bureau of Reclamation (USBR), and the Central Valley Project (CVP)/State Water Project (SWP) water contractors have proposed a program to improve integration of SWP/CVP operations and Delta facilities included in the CALFED Record of Decision (ROD). The program seeks to coordinate the South Delta Improvement Program (SDIP), CVP/SWP Intertie, and the Operations and Criteria Plan (OCAP) schedules, which support continuing the Environmental Water Account and define operational rules for the Banks Pumping Plant and the CVP/SWP Intertie.

South Delta Improvements Program – DWR and USBR are responsible for implementing CALFED's South Delta Improvements Program. Activities include providing for more reliable long-term export capability by the state and federal water projects, protecting local diversions, and reducing impacts on San Joaquin River salmon. Specifically, the CALFED actions in the South Delta Improvements Program include consideration of placement of a fish barrier at the head of Old River, up to three hydraulic barriers in south Delta channels, dredging and extension of some agricultural diversions, and increasing diversion capability of Clifton Court Forebay.

North Delta Improvement Program – Operated as part of the CALFED Bay-Delta Improvement Projects, the purpose of the North Delta Flood Control and Ecosystem Restoration Project is to implement flood control improvements in a manner that benefits aquatic and terrestrial habitats, species, and ecological processes. The additional objectives include:

- Improve Water Supply Reliability for Conveyance
- Improve Water Quality for Conveyance
- Recommend Ecosystem Restoration and Science Actions
- Improve Levee Stability
- Improve and Enhance Recreation

Dredging

National Dredging Team – The Army Corps of Engineers and the U.S. EPA are co-chairs of the National Dredging Team (NDT). The NDT was established in 1995 to support implementation of the National Dredging Policy, promote national and regional consistency on dredging issues, and provide a mechanism for issue resolution and information exchange among Federal, State, and local agencies and stakeholders. This policy calls for establishing Regional Dredging Teams and Local Planning Groups to coordinate dredging activities and permitting. The Delta LTMS could function as one or both of these groups under the National Dredging Policy.

Delta Dredging and Reuse Strategy – The Delta Dredging Reuse Strategy (June 20, 2002, Central Valley Regional Water Quality Control Board) analyzed the regulatory and technical considerations for contaminants in dredged material, particularly for the Regional Board's review of dredging projects. The technical analysis focused mainly on upland placement and beneficial use. The recommendations include identification of information gaps, recommendations for permit streamlining, and recommendations for interim screening values and test methods that may be used by Regional Board staff in future General Order Waste Placement Requirements or to assess future projects.

San Francisco Bay LTMS – Beginning in 1994, the USACE, USEPA, the SWRCB, the San Francisco Bay Regional Water Quality Control Board, the Bay Conservation and Development Commission (BCDC) and other agencies began developing a Long-term Management Strategy for dredging in the San Francisco Bay. This program provides useful guidance and experience for implementing the Delta LTMS.

Levees

CALFED Levees Program – The purpose of the CALFED Levees Program is to facilitate levee system integrity to protect water supplies needed for the environment, agriculture, and urban uses by reducing the threat of levee failure and seawater intrusion. This involves collaboration between CALFED, DWR, the Department of Fish and Game, USACE, and the Reclamation Board, and numerous local reclamation districts. The CALFED Authorization Act (108-361) provided further direction on the development and implementation of the Levee Stability and Improvement Program.

Delta Risk Management Study (DRMS) – This is a multi-year program to evaluate the ongoing and future risk of levee failure and to develop a set of alternative risk reduction plans to mitigate the consequences of levee failures. DWR has an ongoing program to reuse dredged material for Delta levee construction. Because levee construction material is in such short supply in the Delta, the primary issue for DWR associated with dredging activities is the long-term viability of this beneficial reuse program while protecting the beneficial uses of the waters of the State.

Navigation

San Francisco to Stockton Ship Channel Deepening – The San Francisco District of the Army Corps of Engineers is managing the planning process for deepening the channel from Stockton to San Francisco to accommodate larger ships of varying commodities.

Sacramento Ship Channel Deepening – Proposed improvements call for deepening the existing 300-ft- wide project from 30 to 35 ft from Sacramento River miles 12 to 20.

Water Quality

Regional Board TMDLs – The California Regional Water Quality Control Board, Central Valley Region is working on four Total Maximum Daily Load (TMDL) studies to address Delta water quality problems related to mercury, salinity, dissolved oxygen, diazinon, and chlorpyrifos. The mercury, diazinon and chlorpyrifos TMDLs are being developed. The salinity and dissolved oxygen TMDLs have been adopted by the Board and are undergoing the approval process with the State Water Resources Control Board and the Office of Administrative Law. The diazinon and chlorpyrifos TMDLs will go to the Board in June.

Stockton Dissolved Oxygen Project – A large stakeholder-driven process to find a regional solution to the seasonal dissolved oxygen depression that occurs in the San Joaquin River. Low dissolved oxygen levels can be harmful to resident aquatic life and can delay the fall salmon migration in the river. The organizational structure for the project includes several oversight committees and diverse stakeholders, including the regional water board, local governments and agencies, and state and federal agencies.

Bay-Delta Basin Plan Update – The State Water Resources Control Board has adopted a Triennial Review staff report with a commitment to review baseline monitoring, aquatic life protection, chloride objectives, flow objectives, export limits and electrical conductivity objectives, among others, over the next decade. The California Regional Water Quality Control Board, Central Valley Region also has a Water Quality Control Plan for the Sacramento River and San Joaquin River Basins with objectives for salt and other constituents in the Delta.

State Water Resources Control Board Sediment Management Program – The State Board is managing a program to characterize and manage Delta sediments to improve water quality.

Ecosystem Restoration

CALFED Ecosystem Restoration Program – One of CALFED's program elements, the Ecosystem Restoration Program is designed to protect and restore aquatic, upland and riparian habitats, fish populations and other native species in the Delta.

Land Use

Delta Protection Commission Land Use and Resource Management Plan—Adopted in November 1995 and reprinted in 2002, the DPC Land Use and Resource Management Plan includes findings, policies, and recommendations for maintaining and improving Delta resources in eight areas: environment; utilities and infrastructure; land use; agriculture; water; recreation and access; levees; and marine patrol, boater education, and safety programs.

County and City General Plans – A city or county's basic planning document. It provides the blueprint for development throughout the community by addressing all aspects of development, including housing, traffic, natural resources, open space, safety, land uses, and public facilities.

Other

Irrigated Lands Program – In July 2003, the California Regional Water Quality Control Board, Central Valley Region adopted a resolution which sets forth two Conditional Waivers of Waste Discharge Requirements (WDRs) for discharges of waste to surface water from irrigated lands. One Irrigated Lands Conditional Waiver is for Coalition Groups, the other is for individual Dischargers. The California Regional Water Quality Control Board, Central Valley Region also developed Monitoring and Reporting Program Plans for Coalition Groups, and Individual Dischargers. The Regional Board is in the process of adopting a new waiver.

Delta Trail – State Senator Tom Torlakson has proposed a five-county trail network through the Delta that would stretch from the Bay Area to the heart of the Great Central Valley. The trail planning would be coordinated with levee improvement activities.